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HIV infection in adolescence, Cuba, 2014-2016: an epidemiological approach

Abstract

Introduction: HIV/AIDS is currently a serious health problem worldwide. Adolescents constitute a group of vulnerable and exposed risk, given the characteristics of this stage; which include, among others, sexual relations at an early age and without adequate protection.

Objective: To characterize the epidemiological behavior of HIV in adolescents (10-19 years) in the 2014-2016 periods.

Method: Descriptive, retrospective study of all cases of adolescents diagnosed with HIV in Cuba, during the period January 2014 to December 2016. The variables studied were: age, sex, color of the skin, stage in which it is located, provinces most affected, sources of transmission, location of cases. Information was obtained from the registry of sexually transmitted infections and HIV/AIDS of the National Epidemiology Directorate of the Ministry of Public Health. Results: The behavior of the epidemic in this stage presented a universe of 396 cases diagnosed especially in Ambulatory Care. There was male predominance (62.12%), with low figure in the group of 10 to 14years with 11 cases (2.78%). 97.22% were between 15-19 years old. The 95.45% remained in the condition of asymptomatic and 18 have developed AIDS, for 4.55%. There was a proportion of 95.5% of cases not AIDS for every 4.5% patients. There was 1fallen due to AIDS (0.25%) and the same figure for other causes. Heterosexuality predominated with 209 cases (52.78%); followed by the homobisexual for 46.97%, as the main sources of transmission. The provinces that presented the most cases were Havana and Santiago de Cuba. **Conclusions:** Most of the diagnosed cases are in Ambulatory Care and come from the main provinces of the country, they are heterosexual men, with the highest number of cases in the late adolescence stage (10-15years). The condition of asymptomatic in its majority can constitute a risk to continue the transmission given the possibility of taking great risks, typical of this stage of the life.

Keywords: HIV, epidemiology, geographical distribution, location of cases with HIV and AIDS

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Introduction

The data related to AIDS remain alarming. An infection ignored for a long time until the first reports of immunosuppressed patients who presented diseases classified as opportunistic in 1981, 40years later the figures continue to be impressive; 35 million die because of this cause.

Although more is currently known about this virus, around 40% of the world do not know that they are infected and this situation will have major consequences; and to cite an example; in Spain, 60% of the new cases of the human immunodeficiency virus (HIV) had been caused by people who did not know about this condition.[1] HIV continues to be one of the biggest problems for global public health. In 2016, one million people died worldwide from causes related to this virus and by the end of that year, there were approximately 36.7million people infected with HIV and 1.8million new infections had occurred.[2] According to data from 2016, the World Health Organization (WHO) states that in the African Region there were 25.6million people infected, the most affected and in which almost two thirds of new infections are registered for HIV in the world.[2] He points out that there are population groups that deserve special attention because of an increased risk of HIV infection, regardless of the type of epidemic and the local situation: men who have homosexual relationships, injecting drug users, inmates and people who they are confined to other environments, sex workers and their clients and transsexuals, since, in 2015, 44% of new infections affected people from these population groups and their partners.[2] According to estimates, only 70.0% of people infected with HIV know their HIV status. Between 2000 and 2016, the number of new infections was reduced by 39% and deaths associated with the virus decreased by one third.[2]

In 2012, approximately 2.1million adolescents (10-19 years old) were living with HIV in low- and middle-income countries. Data on early adolescence (10-14years) are limited, which translates into little information on the progress towards the prevention of new infections or to avoid deaths in the group of adolescents.[3] Adolescents and young people are often extremely vulnerable to HIV infection, both from a social and economic point of view, and AIDS for this population is the leading cause of death in Africa and the second in the world.[4] Worldwide, in 2014 there were 220,000 new HIV infections among adolescents, of which over 60% were girls and women, a figure that is higher in sub-Saharan Africa. Nevertheless; Despite these facts, adolescents are less likely to be screened than adults.[4] A seventh of the new HIV infections worldwide occur during adolescence and, often, affected people do not know their problem and argues that "adolescents face difficult social and emotional pressures, and often confused, as they pass from children to adults, so they need HIV prevention medical services adapted to their situation", according to the WHO, at the same time that expressed that this population group is less likely to be subjected to the tests than adults and need more help to monitor their health and follow with commitment an antiretroviral treatment. In this sense; it is pointed out in surveys conducted by this

organization in 2011 and 2012, that adolescents around the world expressed their concerns and the difficulties they face; These include lack of sufficient access to HIV testing, counseling services and treatment.[5,6]

It also reports that more than two million adolescents between 10 and 19 years old are living with HIV, figures that show that the number of infected people increased a third in the last decade, a phenomenon that is due to the lack of education programs on the subject, directed to this age group since they do not receive attention and/or support that includes the ignorance of the status of infected, so that millions of adolescents are at risk of infection. The WHO, therefore; proposed a guide to address this situation based on advice and recommendations to governments to revise their laws to make it easier for young people to obtain HIV tests without the consent of their parents; as well as the importance of creating health services in improving the quality of care and social support for the infected.[6] With regard to sexually active young people, it is essential to promote the reduction of the number of sexual partners and increase access to comprehensive prevention services that include prevention education interventions and condom distribution programs, encouraging the use of them. and prevention and early intervention in relation to other risk behaviors that can lead to an HIV infection, such as the injection of substances; need accessible and appropriate HIV testing services.

Adolescence, the period of life between 10 and 19years 7, is a crucial stage, because in it there are profound physical, psychological and social changes. It is a stage in which they are exposed to risk factors and behaviors that increase the likelihood of triggering or associating with the triggering of an undesirable event, becoming ill or dying and the repeated actions outside certain limits, which may deviate or compromise their normal psychosocial development , with repercussions that are detrimental to current or future life.[7–9] The lack of information to protect themselves from STIs/HIV/AIDS and indiscriminate and unprotected sexual activity, not worrying about the possibility of contracting them; they constitute factors and behaviors of risk more relevant for the acquisition of these infections, and difficult to understand for having this a long period of incubation and not seeing in a risky behavior immediate manifest consequences. In addition, many adolescents do not know what is meant by risky sexual behavior and even knowing the risk, many believe that they are invulnerable.[10]

The United Nations Children's Fund (UNICEF) called for increased investment in all aspects of adolescents' lives and well-being and even in their struggle for survival, referring to the fact that each year 1.4 millions of them die from traffic accidents, complications in childbirth, suicide, AIDS, violence and other causes.[11] In Cuba, at the end of 2017, statistics accumulated since the beginning of the epidemic in 1986, reported a total of 28, 659 diagnosed with 5, 159 (18%) deceased and people living with HIV (PVV) 23,500 for 82%. For the group of adolescents have been reported since the beginning of the epidemic in this population group (10-19 years) 1987-2017, 1,955 which represents 7.0% of the country's total. (Ministry of Public Health / National Directorate of Epidemiology, computerized HIV/AIDS registry).

Throughout the epidemic, 100 under 15 years of age were diagnosed, 0.34% of all cases diagnosed (1987-2017). (Ministry of Public Health/National Directorate of Epidemiology, computerized HIV/AIDS registry). The various Programs and Strategic Plans in the country have contributed to greater protection against these infections in the population, in general. The need to identify the epidemiological characteristics of HIV infection among the total number of adolescents reported as HIV positive in the period between 2014-2016 in Cuba, due to the existence of studies in previous stages (1987-2014) motivated conducting this study to identify their subsequent behavior.

Method

A descriptive, retrospective study of the total number of cases of adolescents diagnosed as HIV in Cuba in the period between January 2014 and December 2016 was conducted. It should be noted that it does not extend to other periods since its inception, as there are other studies by the author that covers since the epidemic began for this population group 1987 until 2014. The universe was constituted by the 396 cases reported in the country, of them 150 (37.88%) corresponded to the female sex and 246 (62.12%) to the male. The information was obtained from the registry of sexually transmitted infections (STIs) and HIV/AIDS of the National Epidemiology Directorate of the Ministry of Public Health (MINSAP). During the period, 132 cases were submitted in 2014 and in 2015 and 2016, 130 and 134; respectively. The variables analyzed were: sex, age, skin color, years of occurrence, forms of transmission, stage of infection and province of residence.

Statistic analysis

The processing was done using the statistical package SPSS version 15.0, obtaining absolute frequencies, percentages and their confidence intervals of 95%. The index of masculinity was calculated, taking into account the number and subjects of the male sex in relation to the female for all the provinces. To identify differences in percentages, we used the statistical test of homogeneity, the likelihood ratio based on Chi square distribution, setting a significance level of 0.05.

Results

When analyzing the sociodemographic characteristics of cases diagnosed with HIV in adolescents in the country in the period studied (2014-2016) Table 1, it is observed that of the 396 reported cases there was a predominance of male sex with 246 (62.12%), as well as the ages of 15 to 19years of greatest affectation. The color of the white skin was the highest reported followed by the mestiza. The distribution of HIV cases in adolescents by sex varies in the territories. The province of Havana presented the highest percentages of cases for both sexes; followed by Santiago de Cuba, the provinces with predominance of the female sex in the Isle of Youth and equaling in the Province of Guantánamo with 9 cases respectively for both sexes (Table 2). The provinces of Havana followed by Santiago de Cuba and Granma reported the largest numbers of cases with 124, 53 and 30 respectively (Table 3). In Table 4, the distribution according to forms of transmission is observed, where the route of heterosexual sexual relations predominates with 52.78%, followed by the homobisexual with 46.97%; as well as the existence of an unspecified case. Regarding the evolution of adolescents with HIV;(Table 5) it was appreciated that only 18 of them (4.55%) had developed AIDS from the 396 cases reported in that period. According to the general behavior of the epidemic, Table 6 shows that 394 adolescents (99.5%) were in the condition of alive. In the location of these adolescents diagnosed with HIV, 87.1% were in Ambulatory Care, followed by 33 (8.33%) in the penitentiary sanatorium (Table 7).

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Table 1 Sociodemographic characteristics adolescents with HIV Cuba 2014-2016

Sex			
	No.	**%**	**(IC 95%)**
Male	245	62.1	(57,3; 66.9)
Female	150	37.9	(33,1;42,7)
Age group			
14-Oct	11	2.8	(1,15 ; 4,40)
15-19	385	97.2	(95,6; 98,8)
Skin color			
White	159	42,7	(37,7;47,8)
Half Blood	151	40,6	(35,6; 45,6)
Black	62	16.7	(12,9; 20,5)
Missing data	24	_	_

Source: National Directorate of Epidemiology MINSAP.

Table 2 Distribution of HIV cases in adolescents by sex and province of diagnosis Cuba 2014-2016

Province	**Female**		**Male**		**Index of masculinity**
	No	**% (IC 95%)**	**No**	**% (IC 95%)**	
Pinewood of the river	4	2.7 (0.077;5,25)	10	4.07 (1,58; 6,54)	2.5
Sagebrush	2	1.3 (0,0000;3,17)	15	6.1(3.09 ;9,10)	7.5
Havana	58	38.7(30,8396; 46,49)	66	26.8(21,26; 32,39)	1.1
Mayabeque	2	1.3 (0,0000;3,17)	4	1.6 (0,03;3,21)	2.0
Matanzas	6	4.0 (0,8504; 7,14)	12	4.9 (2,17; 7,58)	2.0
Villa Clara	4	2.7 (0,08;5,26)	18	7.3(4,05; 10,59)	4.5
Hundred fires	1	0.7(0,0000;1,97)	7	2.9 (0.75; 4.93)	7.0
Sancti Spíritus	0	0.0	3	1.2 (0,00;2,60)	-
Ciego de Avila	5	3.3 (0,44;6,21)	9	3.7 (1,30;6,01)	1.8
Camaguey	8	5.3 (1.72 ;8,94)	11	4.5 (1,87; 7,06)	1.4
Las Tunas	6	4.0 (0,85;7,14)	10	4.06 (1,58;6.54)	1.7
Holguin	5	3.3 (0.44;6.21)	14	5.7 (2,78;8,59)	2.8
Granma	8	5.3 (1,72;8,94)	22	8.9 (5.36;12.52)	2.8
Santiago de Cuba	24	16.0(10,1077;21,8923)	29	11.8 (7.74;15.83)	1.2
Guantánamo	9	6.0(2,1830;9,8170)	9	3.7 (1,30;6,01)	1.0
Isle of Youth	8	5.3 (1,7219;8,9448)	7	2.9 (0,75;4,93)	0.9
Total	150	37.88	246	62.12	1.6

X^2=26,9; gl=15; p=0.030

Source: National Directorate of Epidemiology. MINSAP.

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Table 3 Distribution of HIV cases in adolescents by province of diagnosis Cuba 2014-2016

Province	No.	%	(IC 95%)
Pinewood of the river	14	3.5354	1.7086 ;5.3621
Sagebrush	17	4.2929	2.287; 6.2980
Havana	124	31.3131	26.7256 ; 35.9007
Mayabeque	6	1.5152	0.3068; 2.7235
Matanzas	18	4.5455	2.485 ; 6.6059
Villa Clara	22	5.5556	3.2897; 7.8214
Hundred fires	8	2.0202	0.6285 ; 3.4119
Sancti Spíritus	3	0.7576	0.000 ;1.6153
Ciego de Avila	14	3.5354	1.7086 ;5.3621
Camaguey	19	4.7980	2.6838 ;6.9121
Las Tunas	16	4.0404	2.0926 ;5.9882
Holguin	19	4.7980	2.6838 ;6.9121
Granma	30	7.5758	4.9582 ;10.1933
Santiago de Cuba	53	13.3838	10.015 ;16.7518
Guantánamo	18	4.5455	2.4850 ; 6.6059
Isle of Youth	15	3.7879	1.8995; 5.6763
Total	396	100.0	

Table 4 Adolescent HIV transmission routes Cuba 2014-2016

Streams of transmission	No.	%	(IC 95%)
HT	209	52,78	(47,8; 57,7)
HB	186	46.97	(42,0; 51,9)
Not specified	1	0,25	(0,00; 0,75)
Total	396	100	_

Source: National Directorate of Epidemiology MINSAP.

Table 5 Distribution according to diagnosis of adolescents with HIV Cuba 2014-2016

Type of case	No.	%	(IC 95%)
VIH	378	95.45	(93,4; 97,5)
page	18	4.55	(2,5; 6,6)
Total	396	100	_

Source: National Directorate of Epidemiology MINSAP.

Table 6 Distribution of HIV/AIDS cases in adolescents according to evolution and provinces Cuba 2014-2016

Provinces	Patient's status						
	Live		Deceased AIDS		Deceased Another cause		% Deceased by AIDS
	No	%	No	%	No	%	
Pinewood of the river	14	3.6	0	0.0	0	0.0	0.0
Sagebrush	17	4.3	0	0.0	0	0.0	0.0
Havana	124	31.5	0	0.0	0	0.0	0.0
Mayabeque	6	1.5	0	0.0	0	0.0	0.0
Matanzas	18	4.6	0	0.0	0	0.0	0.0
Villa Clara	22	5.6	0	0.0	0	0.0	0.0

Table Continued

Provinces	Patient's status						
	Live		Deceased AIDS		Deceased Another cause		% Deceased by AIDS
	No	%	No	%	No	%	
Hundred fires	8	2.0	0	0.0	0	0.0	0.0
Holy Spirit	3	0.8	0	0.0	0	0.0	0.0
Ciego de Avila	14	3.6	0	0.0	0	0.0	0.0
Camagüey	19	4.8	0	0.0	0	0.0	0.0
Las Tunas	16	4.1	0	0.0	0	0.0	0.0
Holguin	19	4.8	0	0.0	0	0.0	0.0
Granma	29	7.4	0	0.0	1	100.0	0.0
Santiago de Cuba	52	13.2	1	100.0	0	0.0	1.9
Guantánamo	18	4.6	0	0.0	0	0.0	0.0
Isle of Youth	15	3.8	0	0.0	0	0.0	0.0
Total	394	99.5	1	0.25	1	0.25	0.3

Source: National Directorate of Epidemiology MINSAP.

Table 7 Location of adolescents diagnosed with HIV Cuba 2014-2016

Location of HIV-diagnosed cases	No.	%	(IC 95%)
Ambulatory care	345	87.1	(83,8; 90,4)
Foreign	5	1.3	(0,2; 2,4)
Passed away	2	0.51	(0,00; 1,2)
Denied attention	1	0.25	(0,00; 0,7)
Attention Slope	6	1.52	(0,31; 2,72)
Lost of Observation	4	1.01	(0,02; 2,00)
Penitentiary Sanatorium	33	8.33	(5,6; 11,1)
Total	396	100	_

Source: National Directorate of Epidemiology MINSAP.

Discussion

The impact they have had on the sexual education of adolescents, the multiple educational programs at the school, community level, as well as the mass media such as the press, radio, television, have contributed to a greater protection towards these infections that could be the cause of the fact that the affectation in this population in Cuba is relatively lower and that the tendency of the epidemic, although it is ascending, as in the rest of the world, has not reached the magnitude that in other countries.[12] The National Strategic Plan for the Prevention and Control of STIs-HIV/AIDS (2014-2018) in Cuba establishes, among others, improving the health status of the population and increasing their satisfaction with the services provided, increasing their reach ;as well as proposals for new actions to influence gaps identified in each area, thus favoring the access of the most affected population; updating the normative bases of the prevention, care, support, treatment, diagnosis and surveillance processes that make up this plan.[13]

The Family Doctor and Nurse Program, in which the National Strategic Plan for the Prevention and Control of STIs and HIV/AIDS 2014-2018 and the Program is included in the Primary Health Care (PHC) National Health Service for Differentiated Comprehensive

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Care in Adolescence, will facilitate obtaining superior results, favoring that rates are even lower in Cuba and that the epidemic trend, although it is ascending, as in the rest of the world, does not reach the magnitude of other countries. The Center for Disease Control and Prevention (CDC) diagnosed HIV infection in the United States in 2015, to 120 children under 13 years of age. This finding differs from the results with respect to the ages of this report.[14] By 2015, 130 new cases were reached in Cuba between 10 and 19 years old. Cortes, in his study, although with a longer period (1987-2014), found that among the total of diagnosed, 1557 were adolescents, and the sources of transmission that predominated was the homobisexual, unlike the current results, where in heterosexuality predominates.[15]

Reports state that at least 28.0% of South African adolescents are infected with HIV; 85.7% more in relation to the 4% that affects males; According to a report by the official news agency SAPA. He attributed this stratospheric difference, according to the head of the Ministry of Health of South Africa, to older men abusing and / or sexually exploiting adolescents, "it is clear that the girls were not having sex with young people their own age, but with older men", also referring to" They are destroying our children", because adults abuse or seduce teenagers with gifts and promises to give them a better life, which their parents can not give them.[16] Studies conducted in Chile highlight the increase registered between 2009 and 2013 in adolescents aged 15 to 19 years, which led to the reformulation of prevention policies towards HIV infection. In other aspects, it is exposed that the sexual behavior of adolescents has generated a sustained increase in the number of cases of HIV since 1999, emphasizing an increase of cases of 74.0% between 2009 and 2003 with respect to the previous period.[16] This increase It is associated with a tendency to rise, since between 2009 and 2013, 390 cases were detected in this age group, which, compared to the 168 registered between 1999 and 2003, shows an even greater increase, reaching 132%.[17] results of the study, these marked increases are not observed, because the growth is slow when observing 132, 130 and 134 cases; respectively in the three years studied.

This disease is the leading cause of death among adolescents in Africa and the second among young people aged 15 to 19 worldwide, and adolescents are the only group in which the mortality figures do not decrease. The data reveal that currently, between late adolescence there are 26 new infections every hour, and approximately half of those living with HIV are in only six countries: South Africa, Nigeria, Kenya, India, Mozambique and Tanzania. The Cuban results in the period studied only speak of one deceased due to AIDS of the 396 cases reported.[18] In Cuba, the results of the Multiple Indicator Cluster Survey (MICS) conducted in 2014 by the Directorate of Medical Records and Health Statistics of the Ministry of Public Health, in collaboration with UNICEF, as part of the global program of MICS, found within its main results in adolescent population from 15 to 19 years, where 1039 (12%) were female and 511 male, for 14%, that 94% of women and 88% of men they had knowledge of a place to get tested; as well as they knew of their results, specifically those in the last year for females and males with 19% and 16%; respectively.[19] Other strengths that count for the sake of prevention are the different normative documents such as programs and resolutions that give curricular output for all the teachings of the National Education System that has, among other topics, the Education of Sexuality and prevention of STIs including HIV/AIDS from the gender, rights and sociocultural approaches.[20–23] Medical care and treatment coverage in Cuba is guaranteed and there is a strict control of people living with HIV or who are sick or suffering from AIDS. There are different counseling services in which face to face, anonymous, telephone and National Help Line; among other. In the National Strategic Plan for the Prevention and Control of STIs and HIV/AIDS 2014-2018, the normative bases of the processes of prevention, care, support, treatment, diagnosis and surveillance, which are an integral part of the In the country there is also a counseling center for adolescents called "Center to+Adolescent Spaces" in Old Havana, first of its kind in the country, focused on the age group of adolescents (12 to 18years old) with very good results since its creation.

Conclusion

The majority of diagnosed cases are located in ambulatory care and come from the main provinces of the country are heterosexual men and are in the late adolescence stage (15-19years). Due to its asymptomatic status it can constitute a risk to continue the transmission of the infection, given the possibility of taking great risks, typical of this stage of life, for which reason they continue to direct actions focused on health promotion and prevention care, early diagnosis and monitoring of cases so that the epidemic is controlled.

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Conflict of interest

The author declares o conflict of interest.

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